REMARKS

The examiner notes in the office action that the rejected claims are claims 40-45, 48-53, 55-60, 62 and 63. This is incorrect since claim 50 was previously cancelled in the amendment dated August 17, 2001. Thus the office action should have stated that the pending claims which have been rejected are claims 40-45, 48, 49, 51-53, 55-60, 62 and 63. These claims have been replaced with new claims 64-91.

The examiner has rejected claim 53 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Applicant submits that the cancellation of claim 53 obviates this rejection. In this regard it is to be noted that none of the new claims suffer from the defects noted by the examiner in the rejection of claim 53.

The examiner has rejected claims 40-45, 48-49, 50-53, 55-60 and 62-63 under 35 U.S.C. § 102(b) as being anticipated by WO 93/06921. In addition, the examiner has also rejected the same claims under 35 U.S.C. § 102(b) as being anticipated by Roberts. Applicant submits that the new claims are not anticipated by either of these two references for the reasons discussed below.

Claims 64-72 claim an adjuvant and claims 73-89 claim a vaccine composition. Claim 90 claims a method for enhancing an antibody response which uses the adjuvant of claims 64 or 65. Claim 91 claims an immunizing method which uses the vaccine composition of claim 73.

It is to be noted that the new claim main claim in the application (i.e., claim 64) claims "an adjuvant for use in a vaccine" instead of "an adjuvant composition" or "a pharmaceutical formulation". There is sufficient disclosure in the application to support

a claim related to "an adjuvant for use in a vaccine". For example, the examiner's attention is directed to page 5, lines 18-20.

It is also to be noted that the independent claims (i.e., claims 64 and 65) utilize the preamble "consisting essentially of" instead of the previously used preamble "comprising".

Claim 64 recites that the two essential components in the adjuvant are i) a monoglyceride preparation that may contain a minor amount of fatty acid and ii) a fatty acid. Claim 64 further recites that components i) and ii) are present in such a concentration that the combination of i) and ii) illicits an immune response when administered to an animal. Claim 65 more particularly recites that i) and ii) are present in the adjuvant in a weight ratio of from 0.1/50 to 50/1 so that the combination of i) and ii) illicits an immune response when administered to an animal. The weight ratios recited in claim 65 are supported in the specification (see page 7, lines 17-19). In this regard it is to be noted that applicant derived the weight ratio of component i), i.e., the monoglyceride preparation to component ii), i.e., the fatty acid (0.1/50 to 50/1). Although the ratios are not explicitly stated in the specification, they are easily derived from the disclosure. In this regard it is to be noted that on page 7 it says:

> The concentration of the monoglyceride may be in the range of 0.1 to 50 g per 100 ml of water, preferably in the range of 1-20 g per 100 ml of water. The fatty acid concentration may be in the range of 0.1-50 g per 100 ml formulation, preferably in the range of 1-20 g per 100 ml water.

In other words, for the weight ratio 0.1-50, applicant has used the lower limit for component i) the monoglyceride preparation and the highest limit for component ii) the fatty acid. For the weight ratio 50/1, applicant has used the highest limit for the monoglyceride preparation and the preferred lower limit for the fatty acid. Applicant has chosen these ranges in order to clearly distinguish the novel adjuvant from the

disclosure of WO 93/06921.

As noted above, claims 64 and 65 use the intermediate transitional phrase "consisting essentially of". It will become apparent from the discussion of the prior art references that this transitional phrase overcomes the novelty rejections of the final office action.

It is also to be noted that the formula for the monoglyceride recited in the amended claims more accurately shows the position of the acyl group. In the original claims the acyl group was depicted as being attached to one of the terminal carbon atoms through an oxygen atom. In the present claims the acyl group is attached to any of the three carbon atoms via the oxygen atom. This is believed to be more accurate because it is noted in the specification that acyl migration normally occurs in monoglycerides and this migration results in a proportion of the monoglyceride having the acyl group in the center position. In particular it is stated on page 4, lines 30-32 that:

> However there is normally a acyl migration between the 1 and 2 carbons in the glycerol molecule resulting in approximately 90% is in the R_3 position and 10% in the R_2 position.

It is therefore self-evident that the migration results in a proportion of the monoglyceride having the acyl group in the center position. The claims now more accurately reflect this arrangement.

Claim 73 relates to a vaccine composition which comprises the novel adjuvant and an immunogenic quantity of an antigent component. The novelty-imparting feature is thus the novel adjuvant and, accordingly, it is clear that all the claims claiming the vaccine composition are novel.

In claim 74 the antigen is further defined as "capable of causing the formation

of an antibody in animals including humans and marine animals". In this regard it will be recalled that the examiner suggested during the interview to introduce antigen or specific antigen in the claims. This is because the compositions described in U.S. patent no. 4,446,165 do not contain any substances that make them usable in vaccines in an animal.

In claim 75 the antigen component is further specified, based on the description on page 1, lines 10-11.

In claim 77, applicant has returned to reciting grams instead of percentages to deal with the examiner's rejection of claim 53.

Claim 83 relates to vaccine comprising an antigen component chosen from the ones mentioned in the examples.

Discussion of Prior Art References

Roberts (U.S. patent no. 4,446,165) describes emulsions for use especially as foods. Other uses are mentioned such as cosmetic ointments and drug delivery vehicles. These emulsions contain an aqueous phase and a lipid phase which are distinct phases.

Roberts does not disclose or suggest that his emulsion can be used as an adjuvant for a vaccine. Although Roberts states that his emulsions may be used as a drug delivery vehicle, i.e., for delivering drug substances, one skilled in the art would understand from this that the vehicle itself must be without any physiological activity just like any other suitable pharmaceutically acceptable excipient used in a pharmaceutical composition. In contrast, the present invention claims an adjuvant. It is well recognized by those skilled in the art that an adjuvant is a substance that stimulates and prolongs antibody synthesis when administered together with an antigen (cf. *Henderson's*

Dictionary of Biological Terms, Longman, 1989, copy enclosed). It is therefore self-evident that the claimed invention is patentably distinguished over Roberts.

WO 93/06921 discloses particles comprising monoglyceride, water and a "fragmentation agent". It will be appreciated by one skilled in the art that such fragmentation agents are not used in the present invention and are excluded by the transitional phrase "consisting essentially of". Furthermore, even if the monoglyceride contained in a particle described by WO 93/06921 contains an amount of free fatty acid (see e.g., page 20, item 3.1.1), the amount of free fatty acid does not exceed 1% of the monoglyceride content. In WO 93/06921 it is disclosed a composition comprising monoglyceride with an inherent content of fatty acid which is at most 1%. It will be appreciated that the free fatty acid content recited in applicant's claims exceeds 1%. In this regard it is to be noted that in applicant's claims the adjuvant consists of monoglyceride with at most 1% free fatty acid, and then an **additional** amount of free fatty acid which raises the content of free fatty acid to more than 1%.

Claim 65 is further distinguished over WO 93/06921 in view of the weight ratios recited therein. In claim 65 the weight ratios between component i) - the monoglyceride preparation -and component ii)-the fatty acid-is given as a range, namely 0.1/50 to 50/1. From this range it can be calculated that the lowest amount of component ii) present in the adjuvant is 2% w/w (50/1). In other words even if component i) contains as much as 1% w/w free fatty acid, the adjuvant claimed has a content of fatty acid that exceeds the content in component i). In WO 93/06921 on page 20, cf. above, the only content of fatty acid in the particles arises from the monoglyceride.

In view of the above, applicant submits that the new claims are clearly patentably distinguished over the prior art.

Respectfully submitted,

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